GYMNOCHANDA LIMI, A NEW SPECIES OF GLASS-PERCH FROM SUMATRA (TELEOSTEI: CHANDIDAE)

by

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ABSTRACT. - *Gymnochanda limi*, new species, is described from the Batang Hari basin in Sumatra on the basis of a single specimen 21.5 mm SL, supposedly mature male. It is unique among Chandidae in possessing a very elongated second anal spine reaching to end of the anal fin; it also lacks the filamentous anal and second dorsal rays of other species of *Gymnochanda*. The modified anal spine, if confirmed as sexually dimorphic, is hypothesized to be used for display during courting and for keeping physical contact with the female during spawning.

RÉSUMÉ. - *Gymnochanda limi*, espèce nouvelle, est décrite du bassin du Batang Hari à Sumatra sur la base de l'holotype long de 21,5 mm LS. L'holotype, probablement un mâle, est unique parmi les Chandidae par sa seconde épine anale très allongée et atteignant la fin de la nageoire anale; l'absence de rayons filamenteux à la nageoire anale et à la seconde dorsale le distingue des mâles des autres espèces du genre *Gymnochanda*. Si l'épine anale modifiée est sexuellement dimorphique, il semble vraisemblable qu'elle joue un rôle visuel dans la parade nuptiale ou qu'elle serve à maintenir le contact physique avec la femelle durant la ponte.

Key-words. - Chandidae, Ambassidae, *Gymnochanda limi*, Sumatra, New species.

Gymnochanda filamentosa Fraser-Brunner, 1955, despite being rare in museum collections, is quite well known, more for being a good example for nomenclature courses than for its biological interest. This monotypic genus was independently described with exactly the same generic and specific names by Fraser-Brunner (1955) and Boeseman (1957), both on the basis of aquarium specimens, supposedly from Malay Peninsula and Borneo or Sumatra, respectively. It subsequently appeared only once in scientific literature when Roberts (1989) reported it from Kalimantan Barat (Borneo).

It is distinguished by its scaleless body and by the filamentous anal and second dorsal rays which are sexually dimorphic for males; females do not have modified rays, which are used for display during courting.

I am reporting here the discovery of a second species of naked glass-perch with what I hypothesize to be a sexually dimorphic modified anal spine used for display and mating. Although there is only a single specimen (attempts to obtain more have failed), the unlikely prospect of getting more material in the near future, the unique character and the potential interest of the fish for the study of chandid reproductive behaviour by others are justification for not postponing its description. Problems and needs of systematics in the frame of biodiversity research are discussed elsewhere (Kottelat, 1995).

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MATERIAL AND METHODS

Methods for counts and measurements are self explanatory and follow standard practices in ichthyology (see, e.g., Kottelat and Whitten, 1993). Terminology of head bones follows Fraser-Brunner (1955) (alternatively, see also Allen and Burgess, 1990; Kottelat and Whitten, 1993). Abbreviations used are: HL, head length; SL, standard length; ZRC, Zoological Reference Collection, National University, Singapore.

GYMNOCHANDA LIMI N. SP.

Holotype

ZRC 37717, 21.5 mm SL; Indonesia: Sumatra: Jambi Province: oxbow lake 200 m north of where the road Lubuk Kandia - Jambi crosses Sungei Kelumpang, 1°05'S-102°07'E; F. Danielsen, 7 Aug. 1991.

Diagnosis

Gymnochanda is distinguished from its only named congener and indeed any other species of the family Chandidae by its unique large second anal spine which, when deflected backwards almost reaches base of last anal ray; this character might be sexually dimorphic as are the elongated anal and dorsal rays of male *G. filamentosa* which are lacking in the present specimen. Other characters distinguishing *G. limi* from *G. filamentosa* are: preorbital ridge with only two spines anteriorly (vs. strongly serrated); and preoperculum serrated only along lower margin, with a few very blunt spines on hind margin and ridge smooth (vs. strongly serrated on lower and hind margin and on ridge).

Description

See figure 1 for general appearance. Total length 130.2 % SL; head length 34.0% SL, body depth at origin of first dorsal fin 36.7% SL; length of base of first dorsal fin 12.1% SL; length of base of second dorsal fin 32.6% SL; length of base of anal fin 39.5% SL; depth of caudal peduncle 11.1% SL, 33% HL, 1.58 times in its length; length of caudal peduncle 17.7% SL, 52% HL; length of upper caudal lobe 27% SL; length of lower caudal lobe 27.9% SL; length of median caudal rays 11.2% SL; length of pectoral fin 17.7% SL; length of pelvic fin 13.5% SL; snout length 12.6% SL, 37% HL; eye diameter 13.0% SL, 38% HL; interorbital width 10.2% SL, 30% HL.

First dorsal fin with 7 spines, second one the longest, third about 2/3 of second one, spines 6 and 7 very much reduced. Second dorsal with one spine and 13 branched rays, continuous with first dorsal by a very low membrane, spine about same length as following rays. Anal fin with 3 spines and 12 branched rays; second spine much elongated, arched backwards, 31.6% SL, almost reaching base of last anal ray when deflected backwards; first spine about 2/3 of length of third spine which is about the same length as following rays. Pelvic with 1 spine and 5 rays. Pectoral with 12 or 13 rays. Caudal with 9+8 principal rays.

Mouth small, lower jaw included when closed. Teeth in upper jaw in a single row laterally and in at least 2 rows near symphysis, in a narrow band in lower jaw. Gill rakers long and slender, 13 on lower branch of first branchial arch.

Preorbital ridge with 2 strong, backwards oriented spines anteriorly and smooth behind; preorbital margin with about 5 strong serrae (Fig. 2). Preoperculum with 6 serrae along its lower edge, a larger serrae at angle and 5 blunt to very blunt ones along its hind

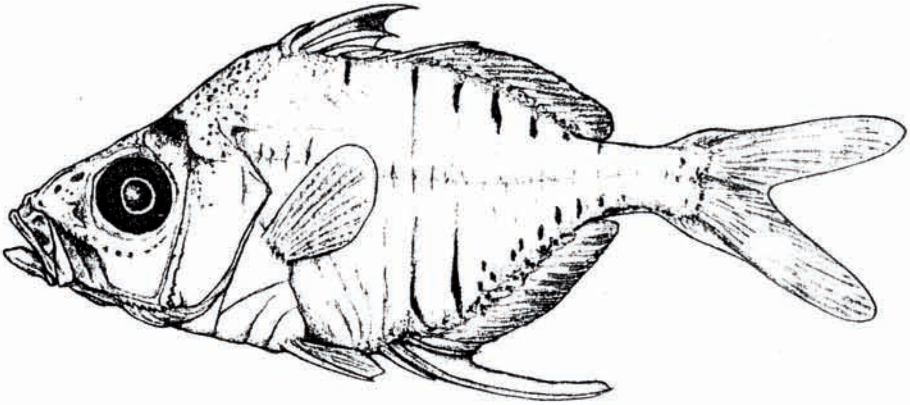

Fig. 1. - *Gymnochanda limi*, holotype, ZRC 37717, 21.5 mm SL.

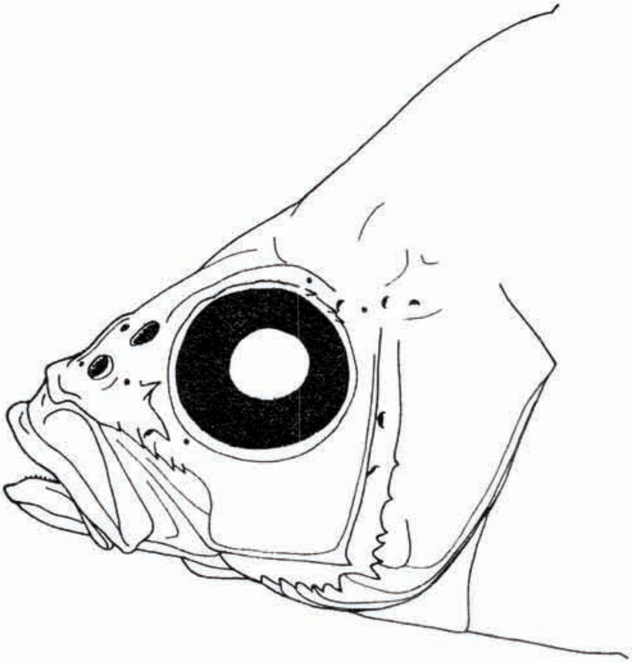

Fig. 2. - *Gymnochanda limi*, holotype, ZRC 37717, 9697, 21.5 mm SL; details of head serration.

margin. Supraorbital ridge with 3 very low serrae posteriorly. Interorbital, suborbital, operculum, suboperculum and interoperculum entire.

No scales. Lateral line indistinct, possibly represented by 12 pores anteriorly, ending approximately below origin of second dorsal.

Colouration of holotype fixed in formalin and stored in ethanol: body and head yellowish white, with a dark mark on nape and a few pigments scattered on body mainly along dorsal and ventral midlines and head (see figure 1 for exact distribution). Body with some 4-5 very faint dark vertical intramuscular bars between second dorsal and anal (no superficial pigments). A yellowish-reddish patch at the end of caudal peduncle might suggest that at least this part of the fish could be red in life. Membrane of first dorsal black between tips of first and second, and second and third spines, with a few brown pigments below; spines 1-4 also with pigments. Spines 5-7 and membranes connecting them hyaline. Second dorsal and anal with densely set pigments on membranes, especially denser along fin margin. Projecting part of second anal spine and accompanying membrane hyaline or white, probably white in life. Caudal and pectoral with pigments along ray margins. Pelvic hyaline.

Etymology

The new species is named for Kelvin K. P. Lim, in appreciation for his enthusiastic support to my visits and research.

Remarks

The filamentous, distally milk-white dorsal and anal rays of *G. filamentosa* are sexually dimorphic (Roberts, 1989: 160; see Kottelat and Whitten, 1993: pl. 2 for a colour photograph). The only available specimen of *G. limi* has not been dissected. Although it cannot be ruled out that it might be a female and that the males could have filamentous rays too, I hypothesize that this specimen is a male and that the spectacularly elongated second anal spine might be sexually dimorphic, analogous to the filamentous rays of *G. filamentosa*. It also seems the spine would be white in life and I hypothesize that it can also be used for display when courting. Its shape and position, and the fact that it is a bony spine and not a soft ray which is modified, also suggest that the modified spine could be used to keep physical contact with the female during spawning.

Roberts' (1989) description of *G. filamentosa* differs from Fraser-Brunner's (1955) one by the interorbital rim having 10 strong posteroventrally projecting serrae (vs. entire). Boeseman (1957) does not mention serration on the interorbital but also does not explicitly mention if it is smooth or not.

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